ORDER NO. SD82032136C8

Service Manual

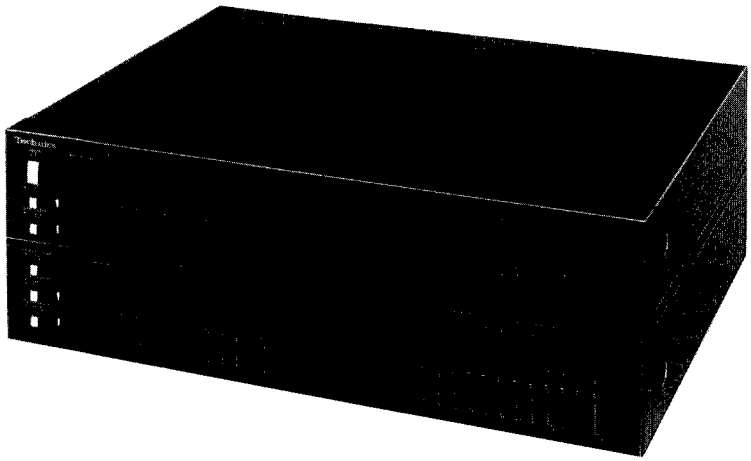
Stereo Graphic Equalizer

SH-8065

[EX], [EK], [EF], [XA]

SH-8065(K)

[EX], [EK], [EF], [XA]



***The cabinet, front panel and knob are available in black color and silver types.**
***The black type model is provided with (K) in the Service Manual.**

Areas

* [EX] is available in Switzerland and Scandinavia.
* [EK] is available in United Kingdom.
* [EF] is available in France.
* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.

Specifications

Specifications are subject to change without notice for further improvement.
Weights and dimensions shown are approximate.

(DIN 45 500)

Frequency response (center position):	5 Hz~100 kHz, −1 dB
Maximum output voltage:	8 V (1 kHz, THD 0.01%)
Rated output voltage:	1 V
Rated total harmonic distortion:	0.0025% (20 Hz~20 kHz)
Input sensitivity:	1 V
Signal-to-noise ratio:	100 dB (110 dB, IHF' A)
Maximum input voltage:	8 V (1 kHz)
Input impedance:	47 kΩ
Output impedance:	600Ω
Gain:	0±1 dB
Band level controls:	+12 dB~−12 dB, +3 dB~−3 dB (33 elements continuously variable per channel)
Signal level selector:	150 mV/1 V
Center frequency:	16 Hz, 20 Hz, 25 Hz, 31.5 Hz, 40 Hz, 50 Hz, 63 Hz, 80 Hz, 100 Hz, 125 Hz, 160 Hz, 200 Hz, 250 Hz, 315 Hz, 400 Hz, 500 Hz, 630 Hz, 800 Hz, 1 kHz, 1.25 kHz, 1.6 kHz, 2 kHz, 2.5 kHz, 3.15 kHz, 4 kHz, 5 kHz, 6.3 kHz, 8 kHz, 10 kHz, 12.5 kHz, 16 kHz, 20 kHz, 25 kHz

GENERAL

Power supply:	AC 110 V/120 V/220 V/240 V, 50 Hz/60 Hz
Power consumption:	29 W
Dimensions (H×W×D):	153×430×330 mm (6-1/32"×16-15/16"×13")
Weight:	6.6 kg (14.6 lbs)

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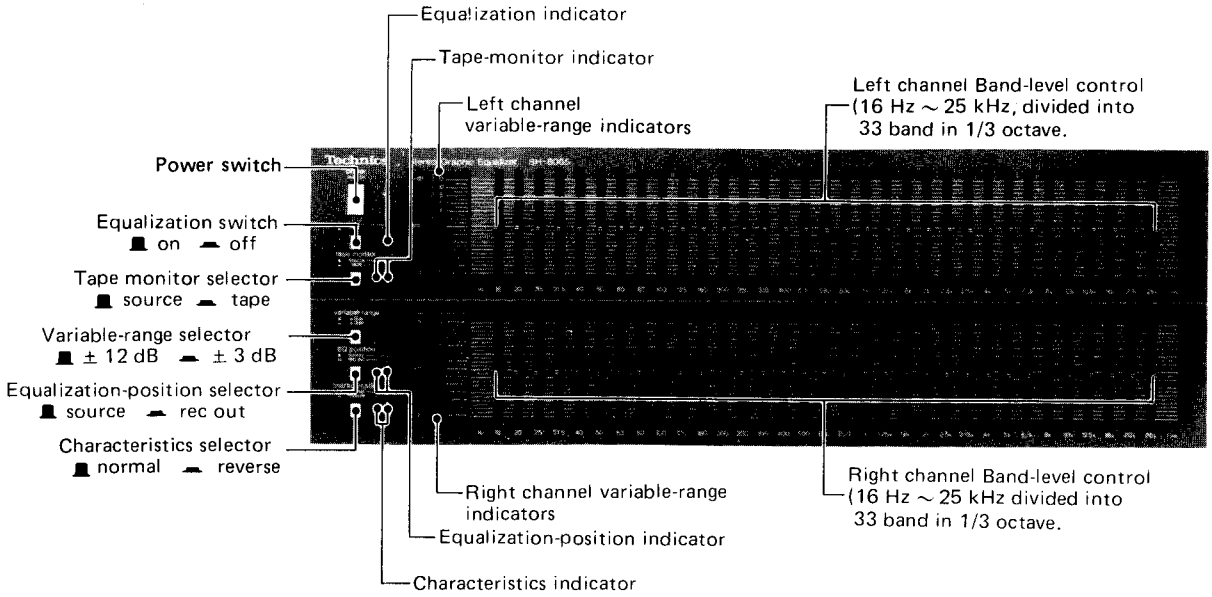
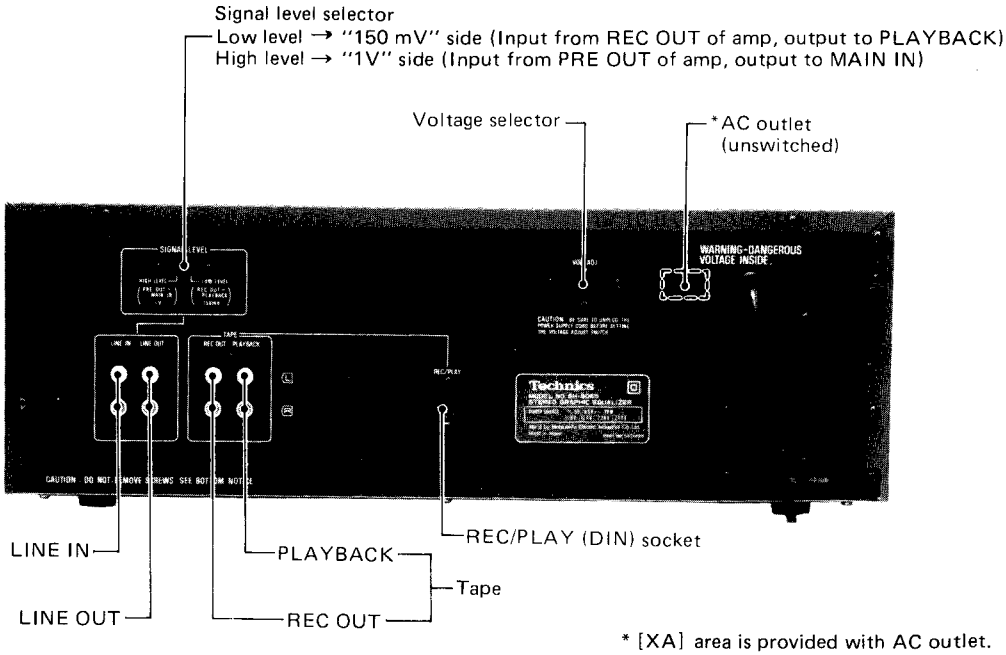
Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

■ LOCATION OF CONTROLS


Equalization indicator
Tape-monitor indicator
Left channel variable-range indicators
Left channel Band-level control (16 Hz ~ 25 kHz, divided into 33 band in 1/3 octave.
Power switch
Equalization switch
on off
Tape monitor selector
source tape
Variable-range selector
± 12 dB ± 3 dB
Equalization-position selector
source rec out
Characteristics selector
normal reverse
Right channel variable-range indicators
Equalization-position indicator
Characteristics indicator
Right channel Band-level control (16 Hz ~ 25 kHz divided into 33 band in 1/3 octave.


Signal level selector
Low level → "150 mV" side (Input from REC OUT of amp, output to PLAYBACK)
High level → "1V" side (Input from PRE OUT of amp, output to MAIN IN)
Voltage selector
*AC outlet (unswitched)
WARNING-DANGEROUS VOLTAGE INSIDE
REC/PLAY (DIN) socket
LINE IN
LINE OUT
PLAYBACK
REC OUT
Tape

* [XA] area is provided with AC outlet.

• Switches

Equalization switch (EQ)

This switch can be used to turn the equalization circuitry on and off.

on: Set to this position for equalizer correction.

off: Set to this position to turn off equalizer correction. By turning this switch on and off, the equalizer effect can also be checked. When this switch is in the "off" position, signals will still pass through the unit and be emitted, regardless of whether the power switch is in the "on" or "off" position.

Tape-monitor selector (tape monitor)

source: Set to this position to listen to the radio or a disc.

tape: Set to this position to listen to a tape deck.

Note:

If the equalization-position selector is set to the "source" position and the equalization switch is set to the "on" position, the frequency response of the radio, disc and tape deck can be controlled.

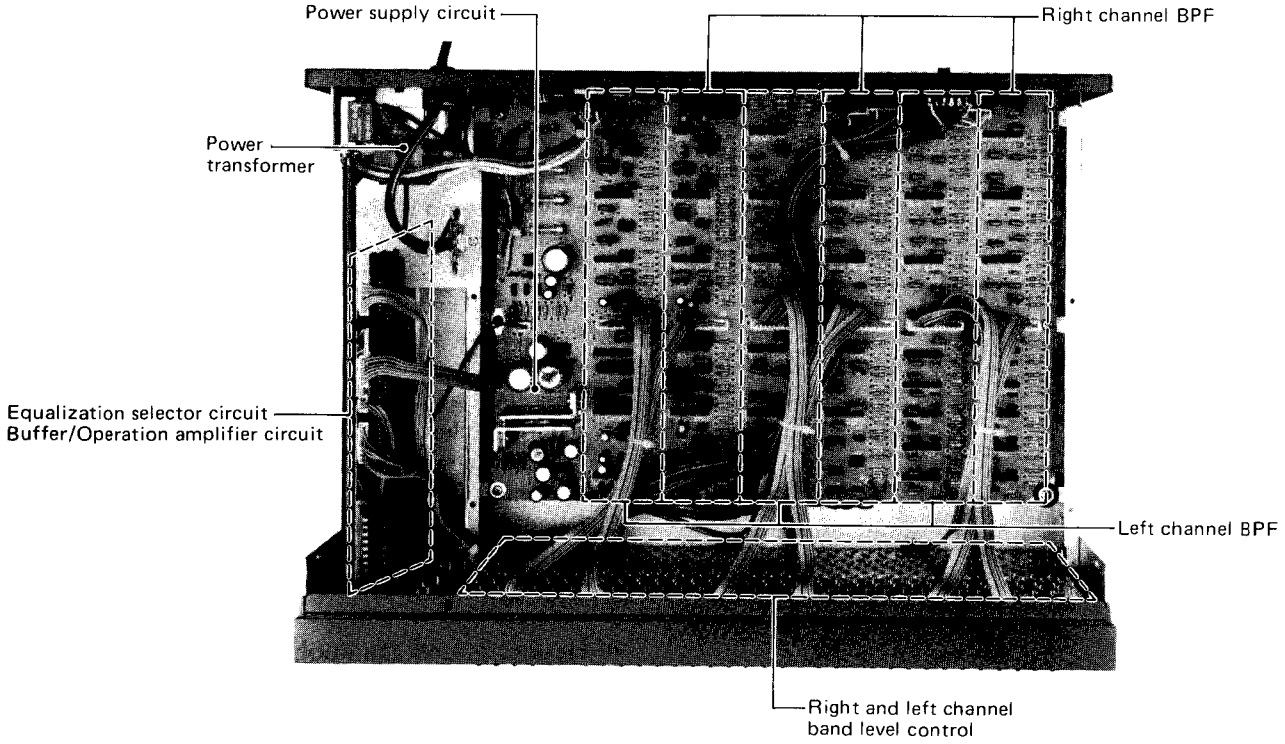
Equalization-position selector (EQ position)

source: Set to this position to record without equalizer correction.

rec out: Set to this position in order to make a tape recording of a radio broadcast or a disc while controlling the frequency response. Also, compensated playback sound can be heard at this position.

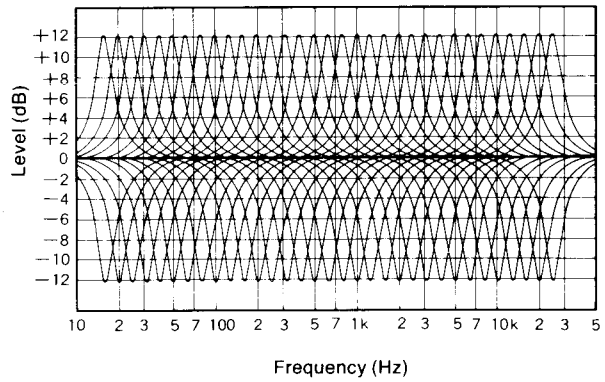
Note:

The equalization switch must be set to the "on" position, otherwise the frequency response cannot be controlled.



■ TOTAL FREQUENCY RESPONSE

Frequency response (± 12 dB position)



■ DISASSEMBLY INSTRUCTIONS

• How to remove the front panel

1. Remove setscrews ❶ ~ ❾ in **Fig. 1** to remove the cabinet.
2. Remove 5 setscrews of the front panel **(Fig. 1)**.
3. Pull out the connectors J3 and J4 from the switch printed circuit board on the left side.
4. Remove the front panel with care not to damage the knob.

• How to remove the bottom board

1. Remove 9 setscrews as in **Fig. 2** and remove the bottom board.

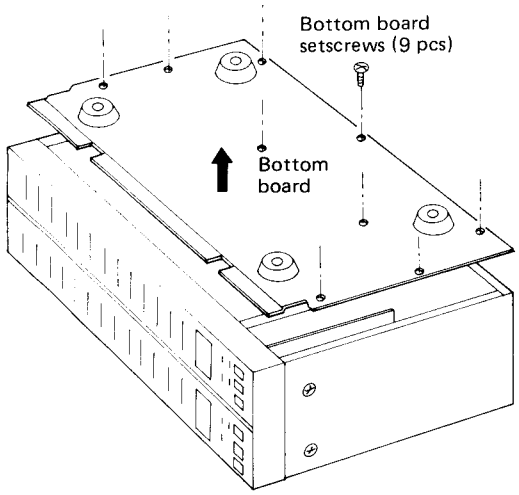


Fig. 2

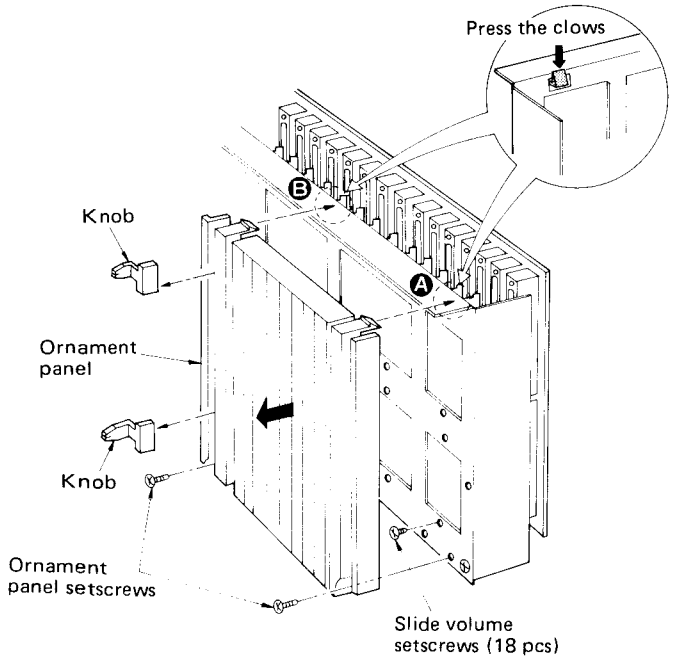


Fig. 3

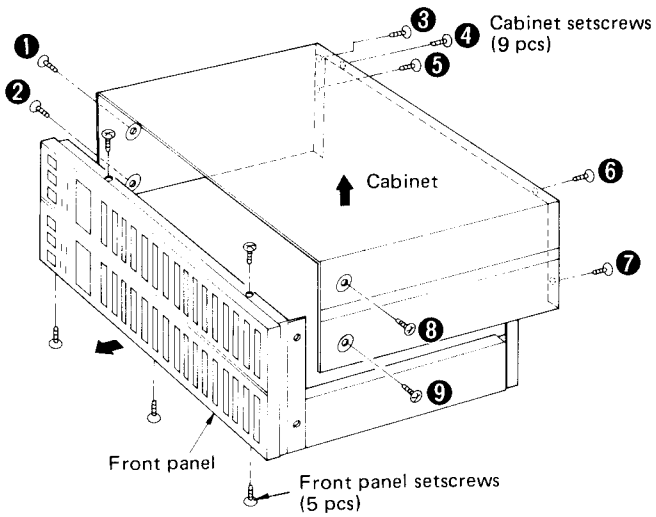


Fig. 1

• How to remove the slide volume

1. Remove the cabinet and front panel.
2. Pull out the 33 knobs of the right and left channels, totalling 66 knobs.
3. Remove the 2 setscrews of the ornament panel as in **Fig. 3.**
4. Press the claws at the top of the ornament panel (Ⓐ and Ⓑ) illustrated in order to remove the ornament panel. (Remove the remaining two ornament panels in the same way.)
5. Remove 18 slide volume setscrews to catch the slide volume from the chassis together with the printed circuit board.

• How to attach the knobs

Insert the top (left channel) volume lever into the lower hole of the knob, and the bottom (right channel) lever into the upper hole, as shown in **Fig. 4.**

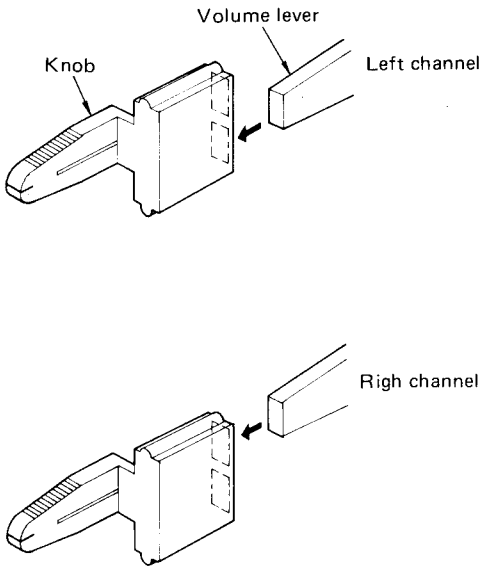


Fig. 4

■ REPLACEMENT PARTS LIST

• Resistors and Capacitors

Notes: 1. Part numbers are indicated on most mechanical parts. Please this part number for parts orders.
2. Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components use only manufacturer's specified parts.
3. The "**S**" mark is service standard parts and may differ from production parts.

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage (1/4W)	Shape	Tolerance	Value

50
Wattage (1/2W)

Numbering System of Capacitor

Example

ECKD	1H	102	K	D
Type	Voltage	Value (0.001μF)	Tolerance	Peculiarity

ECEA	50	M	R47	R
Type	Voltage (50V)	Peculiarity use	Value (0.47μF)	Special use

Capacitor Type			Voltage		Tolerance
			ECEA Type	Others	
ECEA	:	Electrolytic	1A : 10V	1H : 50VDC	C : ± 0.25pF
ECEA. . . . N	:	Non Polar Electrolytic	1C : 16V	1 : 125VDC	J : ± 5%
ECCD	:	Ceramic	1E : 25V	KC : 400VAC	K : ± 10%
ECKD	:	Ceramic	25Z : 25V		Z : +80%, −20%
ECQM	:	Polyester	1V : 35V		P : +100%, −0%
ECQE	:	Polyester	1H : 50V		
			50M : 50V		

Ref. No.		Part No.	Value
RESISTORS			
R1, 2	S	ERD25FJ222	2.2kΩ
R3, 4	S	ERD25TJ104	100kΩ
R5, 6	S	ERD25FJ822	8.2kΩ
R7, 8	S	ERD25FJ332	3.3kΩ
R9, 10	S	ERD25TJ224	220kΩ
R11, 12	S	ERD25TJ224	220kΩ
R13, 14	S	ERD25FJ822	8.2kΩ
R15, 16	S	ERD25FJ332	3.3kΩ
R17, 18	S	ERD25FJ102	1kΩ
R19, 20	S	ERD25FJ222	2.2kΩ
R21, 22	S	ERD25TJ333	33kΩ
R23, 24	S	ERD25TJ104	100kΩ
R25, 26	S	ERD25TJ104	100kΩ
R27, 28	S	ERD25TJ104	100kΩ
R29 30	S	ERD25TJ394	390kΩ
R31, 32	S	ERD25FJ472	4.7kΩ
R33, 34	S	ERD25TJ824	820kΩ
R35, 36	S	ERD25FJ472	4.7kΩ
R37, 38	S	ERD25FJ331	330Ω
R39	S	ERD25FJ331	330Ω
R40, 41	S	ERD25FJ561	560Ω
R42, 43	S	ERD25FJ561	560Ω
R50	S	ERD25TJ153	15kΩ
R51	S	ERD25TJ223	22kΩ
R52	S	ERD25TJ683	68kΩ
R53	S	ERD25TJ224	220kΩ
R54	S	ERD25TJ333	33kΩ
R55	S	ERD25TJ223	22kΩ
R56	S	ERD25FJ562	5.6kΩ
R57	⚠ S	ERD50FJ681	680Ω
R58, 59	⚠ S	ERD25FJ4R7	4.7Ω
R60, 61	⚠ S	ERD25FJ2R2	2.2Ω
R62	⚠ S	ERD25FJ2R2	2.2Ω
R81, 82	S	ERD25FJ272	2.7kΩ
R83, 84	S	ERD25FJ821	820Ω
R85, 86	S	ERD25FJ682	6.8kΩ
R87, 88	S	ERD25TJ123	12kΩ
R89, 90	S	ERD25FJ222	2.2kΩ
R91, 92	S	ERD25FJ152	1.5kΩ
R93, 94	S	ERD25FJ152	1.5kΩ
R101, 102	S	ERD25FJ680	68Ω
R103, 104	S	ERD25FJ680	68Ω
R105, 106	S	ERD25FJ680	68Ω
R107, 108	S	ERD25FJ680	68Ω
R109, 110	S	ERD25FJ151	150Ω
R111, 112	S	ERD25FJ181	180Ω
R113, 114	S	ERD25FJ680	68Ω
R115, 116	S	ERD25FJ101	100Ω
R117, 118	S	ERD25FJ680	68Ω
R119, 120	S	ERD25FJ680	68Ω
R121, 122	S	ERD25FJ101	100Ω
R123, 124	S	ERD25FJ151	150Ω
R125, 126	S	ERD25FJ680	68Ω
R127, 128	S	ERD25FJ101	100Ω
R129, 130	S	ERD25FJ680	68Ω
R131, 132	S	ERD25FJ101	100Ω
R133, 134	S	ERD25FJ101	100Ω
R135, 136	S	ERD25FJ680	68Ω
R137, 138	S	ERD25FJ101	100Ω
R139, 140	S	ERD25FJ680	68Ω
R141, 142	S	ERD25FJ680	68Ω
R143, 144	S	ERD25FJ680	68Ω
R145, 146	S	ERD25FJ181	180Ω
R147, 148	S	ERD25FJ151	150Ω
R149, 150	S	ERD25FJ181	180Ω
R151, 152	S	ERD25FJ101	100Ω
R153, 154	S	ERD25FJ151	150Ω
R155, 156	S	ERD25FJ680	68Ω
R157, 158	S	ERD25FJ680	68Ω
R159, 160	S	ERD25FJ221	220Ω
R161, 162	S	ERD25FJ221	220Ω
R163, 164	S	ERD25FJ151	150Ω
R165, 166	S	ERD25FJ151	150Ω
R201, 202	S	ERD25FJ391	390Ω
R203, 204	S	ERD25FJ391	390Ω
R205, 206	S	ERD25FJ391	390Ω
R207, 208	S	ERD25FJ391	390Ω
R209, 210	S	ERD25FJ471	470Ω
R211, 212	S	ERD25FJ391	390Ω
R213, 214	S	ERD25FJ471	470Ω
R215, 216	S	ERD25FJ471	470Ω
R217, 218	S	ERD25FJ471	470Ω
R219, 220	S	ERD25FJ471	470Ω
R221, 222	S	ERD25FJ471	470Ω
R223, 224	S	ERD25FJ471	470Ω
R225, 226	S	ERD25FJ471	470Ω
R227, 228	S	ERD25FJ471	470Ω
R229, 230	S	ERD25FJ471	470Ω
R231, 232	S	ERD25FJ471	470Ω
R233, 234	S	ERD25FJ471	470Ω
R235, 236	S	ERD25FJ471	470Ω
R237, 238	S	ERD25FJ471	470Ω
R239, 240	S	ERD25FJ471	470Ω
R241, 242	S	ERD25FJ471	470Ω
R243, 244	S	ERD25FJ471	470Ω
R245, 246	S	ERD25FJ391	390Ω
R247, 248	S	ERD25FJ391	390Ω
R249, 250	S	ERD25FJ391	390Ω
R251, 252	S	ERD25FJ391	390Ω
R253, 254	S	ERD25FJ391	390Ω
R255, 256	S	ERD25FJ391	390Ω
R257, 258	S	ERD25FJ471	470Ω
R259, 260	S	ERD25FJ471	470Ω
R261, 262	S	ERD25FJ471	470Ω
R263, 264	S	ERD25FJ471	470Ω
R265, 266	S	ERD25FJ471	470Ω
R301, 302	S	ERD25TJ823	82kΩ
R303, 304	S	ERD25TJ104	100kΩ
R305, 306	S	ERD25TJ104	100kΩ
R307, 308	S	ERD25TJ104	100kΩ
R309, 310	S	ERD25TJ104	100kΩ
R311, 312	S	ERD25TJ124	120kΩ
R313, 314	S	ERD25TJ104	100kΩ
R315, 316	S	ERD25TJ124	120kΩ
R317, 318	S	ERD25TJ104	100kΩ
R319, 320	S	ERD25TJ104	100kΩ
R321, 322	S	ERD25TJ104	100kΩ
R323, 324	S	ERD25TJ104	100kΩ
R325, 326	S	ERD25TJ104	100kΩ
R327, 328	S	ERD25TJ124	120kΩ
R329, 330	S	ERD25TJ104	100kΩ
R331, 332	S	ERD25TJ104	100kΩ
R333, 334	S	ERD25TJ104	100kΩ
R335, 336	S	ERD25TJ104	100kΩ
R337, 338	S	ERD25TJ104	100kΩ
R339, 340	S	ERD25TJ104	100kΩ
R341, 342	S	ERD25TJ104	100kΩ
R343, 344	S	ERD25TJ104	100kΩ
R345, 346	S	ERD25TJ104	100kΩ
R347, 348	S	ERD25TJ104	100kΩ
R349, 350	S	ERD25TJ104	100kΩ
R351, 352	S	ERD25TJ104	100kΩ
R353, 354	S	ERD25TJ104	100kΩ
R355, 356	S	ERD25TJ104	100kΩ
R357, 358	S	ERD25TJ104	100kΩ
R359, 360	S	ERD25FJ103	10kΩ
R361, 362	S	ERD25FJ103	10kΩ
R363, 364	S	ERD25FJ103	10kΩ
R365, 366	S	ERD25FJ103	10kΩ

Ref. No.		Part No.	Value
CAPACITORS			
C1, 2	S	ECEA25Z4R7	4.7μF
C3, 4	S	ECCD1H818K	180pF
C5, 6	S	ECEA1ES470	47μF
C7, 8	S	ECEA1ES470	47μF
C9, 10	S	ECCD1H121KC	120pF
C11, 12	S	ECQM1H102JZ	0.001μF
C13, 14	S	ECEA1ES470	47μF
C50, 51	S	ECKD1H223ZF	0.022μF
C52	S	ECEA1CS222	2200μF
C53	S	ECEA1AS101	100μF
C54	S	ECEA1AS221	220μF
C55, 56	S	ECKD1H223ZF	0.022μF
C57, 58	S	ECEA1VS102	1000μF
C59, 60	S	ECEA1ES221	220μF
C61, 62	S	ECQM1H473JZ	0.047μF
C63, 64	S	ECEA1ES101	100μF
C65, 66	S	ECEA1ES221	220μF
C67, 68	S	ECEA1HS100	10μF
C69, 70	S	ECEA1HS100	10μF
C71, 72	S	ECKD1H223ZF	0.022μF
C73, 74	S	ECKD1H223ZF	0.022μF
C75, 76	S	ECKD1H223ZF	0.022μF
C77, 78	S	ECKD1H223ZF	0.022μF
C79	S	ECEA1AS102	1000μF
C81, 82	S	ECEA1VS330	33μF
C101, 102	⚠	ECEA1HN2R2S	2.2μF
C103, 104	⚠	ECEA1HN010S	1μF
C105, 106	⚠	ECEA1HN010S	1μF
C107, 108	⚠	ECEA1HN010S	1μF
C109, 110		ECQE1474KZ	0.47μF

Ref. No.		Part No.	Value
C111, 112		ECQE1334KZ	0.33μF
C113, 114		ECQE1474KZ	0.47μF
C115, 116		ECQE1334KZ	0.33μF
C117, 118		ECQE1334KZ	0.33μF
C119, 120		ECQE1274KZ	0.27μF
C121, 122		ECQE1224KZ	0.22μF
C123, 124		ECQE1184KZ	0.18μF
C125, 126		ECQE1124KZ	0.12μF
C127, 128	S	ECQM1H104JZ	0.1μF
C129, 130	S	ECQM1H823JZ	0.082μF
C131, 132	S	ECQM1H683JZ	0.068μF
C133, 134	S	ECQM1H563JZ	0.056μF
C135, 136	S	ECQM1H393JZ	0.039μF
C137, 138	S	ECQM1H333JZ	0.033μF
C139, 140	S	ECQM1H273JZ	0.027μF
C141, 142	S	ECQM1H223JZ	0.022μF
C143, 144	S	ECQM1H183JZ	0.018μF
C145, 146	S	ECQM1H153JZ	0.015μF
C147, 148	S	ECQM1H123JZ	0.012μF
C149, 150	S	ECQM1H103JZ	0.01μF
C151, 152	S	ECQM1H682JZ	0.0068μF
C153, 154	S	ECQM1H682JZ	0.0068μF
C155, 156	S	ECQM1H472JZ	0.0047μF
C157, 158	S	ECQM1H332JZ	0.0033μF
C159, 160	S	ECQM1H332JZ	0.0033μF
C161, 162	S	ECQM1H182JZ	0.0018μF
C163, 164	S	ECQM1H122JZ	0.0012μF
C165, 166	S	ECQM1H122JZ	0.0012μF
C201, 202	S	ECEA50Z1	1μF
C203, 204		ECQE1474KZ	0.47μF
C205, 206	S	ECEA50MR68R	0.68μF
C207, 208	S	ECEA50ZR47	0.47μF

Ref. No.		Part No.	Value
C209, 210		ECQE1334KZ	0.33μF
C211, 212		ECQE1334KZ	0.33μF
C213, 214		ECQE1274KZ	0.27μF
C215, 216		ECQE1184KZ	0.18μF
C217, 218		ECQE1154KZ	0.15μF
C219, 220		ECQE1124KZ	0.12μF
C221, 222	S	ECQM1H104JZ	0.1μF
C223, 224	S	ECQM1H683JZ	0.068μF
C225, 226	S	ECQM1H683JZ	0.068μF
C227, 228	S	ECQM1H473JZ	0.047μF
C229, 230	S	ECQM1H393JZ	0.039μF
C231, 232	S	ECQM1H333JZ	0.033μF
C233, 234	S	ECQM1H223JZ	0.022μF
C235, 236	S	ECQM1H223JZ	0.022μF
C237, 238	S	ECQM1H153JZ	0.015μF
C239, 240	S	ECQM1H123JZ	0.012μF
C241, 242	S	ECQM1H103JZ	0.01μF
C243, 244	S	ECQM1H682JZ	0.0068μF
C245, 246	S	ECQM1H682JZ	0.0068μF
C247, 248	S	ECQM1H562JZ	0.0056μF
C249, 250	S	ECQM1H332JZ	0.0033μF
C251, 252	S	ECQM1H332JZ	0.0033μF
C253, 254	S	ECQM1H222JZ	0.0022μF
C255, 256	S	ECQM1H222JZ	0.0022μF
C257, 258	S	ECQM1H152JZ	0.0015μF
C259, 260	S	ECQM1H103JZ	0.01μF
C261, 262	S	ECQM1H103JZ	0.01μF
C263, 264	S	ECQM1H822JZ	0.0082μF
C265, 266	S	ECQM1H682JZ	0.0068μF
C301, 302	S	ECEA50MR68R	0.68μF
C303, 304	⚠	ECEA1HN010S	1μF

Ref. No.		Part No.	Value
C305, 306	S	ECQE1474KZ	0.47μF
C307, 308	S	ECQE1274KZ	0.27μF
C309, 310	S	ECQE1474KZ	0.47μF
C311, 312	S	ECQE1334KZ	0.33μF
C315, 316	S	ECQM1H473JZ	0.047μF
C349, 350	S	ECQM1H122JZ	0.0012μF
C351, 352	S	ECQM1H102JZ	0.001μF
C357, 358	S	ECKD1H331KB	330pF
C361, 362	S	ECKD1H331KB	330pF
C363, 364	S	ECKD1H391KB	390pF
C403, 404	S	ECQE1334KZ	0.33μF
C409, 410	S	ECQM1H223JZ	0.022μF
C413, 414	S	ECQM1H273JZ	0.027μF
C417, 418	S	ECQM1H153JZ	0.015μF
C419, 420	S	ECQM1H153JZ	0.015μF
C423, 424	S	ECQM1H822JZ	0.0082μF
C425, 426	S	ECQM1H682JZ	0.0068μF
C429, 430	S	ECQM1H332JZ	0.0033μF
C433, 434	S	ECQM1H182JZ	0.0018μF
C437, 438	S	ECQM1H222JZ	0.0022μF
C439, 440	S	ECQM1H122JZ	0.0012μF
C443, 444	S	ECKD1H391KB	390pF
C449, 450	S	ECKD1H331KB	330pF
C453, 454	S	ECKD1H221KB	220pF
C459, 460	S	ECKD1H331KB	330pF
C465, 466	S	ECKD1H391KB	390pF
C1001	⚠	ECKDKC103PF	0.01μF

• Electrical Parts

Notes: 1. Part numbers are indicated on most mechanical parts. Please this part number for parts orders.
2. Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components use only manufacturer's specified parts.
3. The "**S**" mark is service standard parts and may differ from production parts.

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC1 ~ 38	SVINJM2043SD	Band Pass Filter
IC101, 102	SVINJM2043DD	Operation Amplifier
IC103	SVIL78M20	Regulator, ⊕B Voltage
IC104	SVIUPC7918H	Regulator, ⊖B Voltage
TRANSISTORS		
Q1, 3	2SB745–S	Switching
Q2	2SD636	Switching
DIODES		
D1, 2 ⚠	SVD1B4B42	Rectifier
D3, 4 S	MA162A	Rectifier & Pulse Killer

Ref. No.	Part No.	Description
D5, 7, 9, 11	LN824WP	Switch Position Indicator
D6, 8, 10	LN424WP	Switch Position Indicator
D13	SVD05Z3.0F–3	Zener, 3V
VARIABLE RESISTOR		
VR1 ~ 66	EVAD02C15G25	Band Level Control, 200kΩ (G)
TRANSFORMER		
T1 ⚠	SLTK5L6–Z	Power Source
COIL		
L1 ⚠	SLQK3	Choke
LAMP		
PL1 ~ 4 ⚠	XAMR81S10	Range Indicator, 8V, 0.15A

Ref. No.	Part No.	Description
RELAY		
RLY1	SSY9	Muting
SWITCHES		
S1, 5	SSHK19	Equalizer, Tape Monitor
S2 ~ 4	SSHK20	EQ Position, Characteristics Variable Range
S6	SSSK5	Input Signal Level
S7 ⚠	ESB90619S	Power
S8 ⚠	ESE3787	Voltage Selector
FUSES		
F1 ~ 3 ⚠	XBA2C05TR0	250V, T 500mA

■ PRINTED CIRCUIT BOARDS

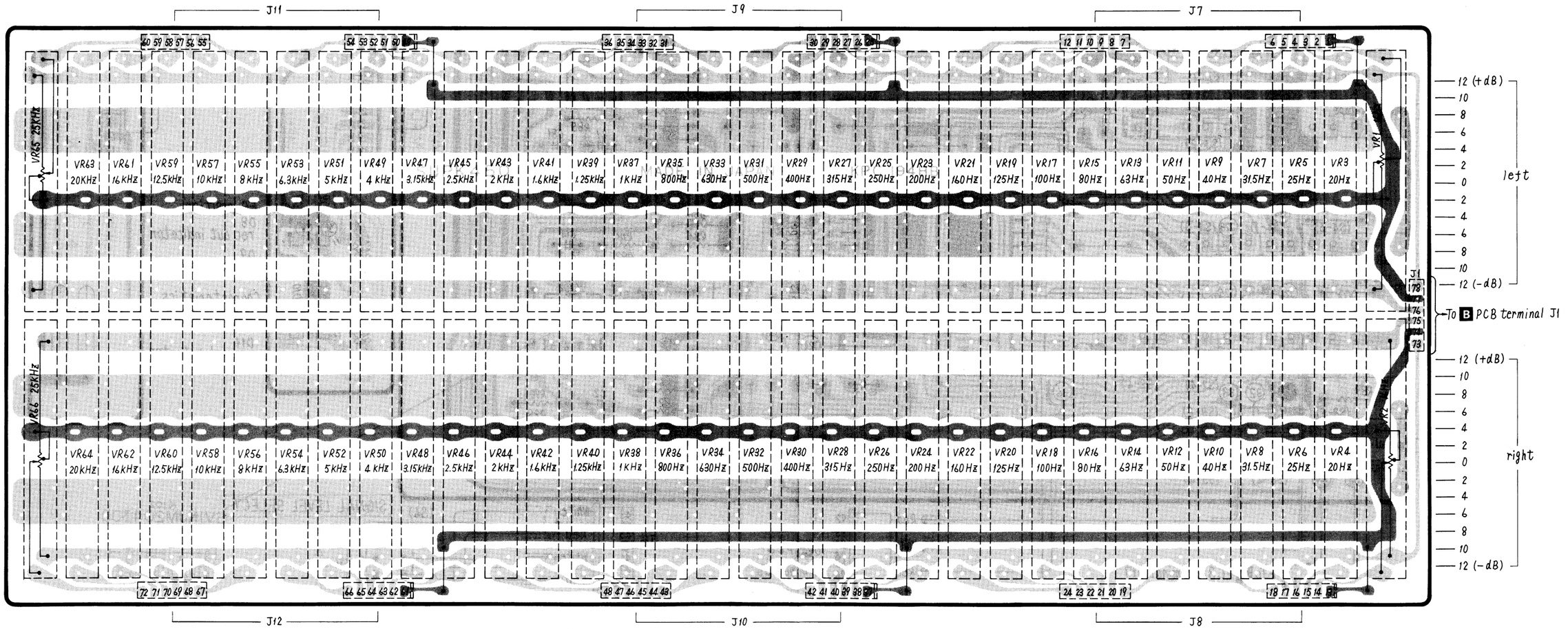
- **Terminal guide of transistors, IC's and diodes**

SVINJM2043SD	SVIL78M20 SVIμPC7918H	SVD1B4B42	LN424WP, LN824WP
SVINJM2043DD	2SB745, 2SD636	MA150	SVD05Z3.0F-3

C P.C.B.

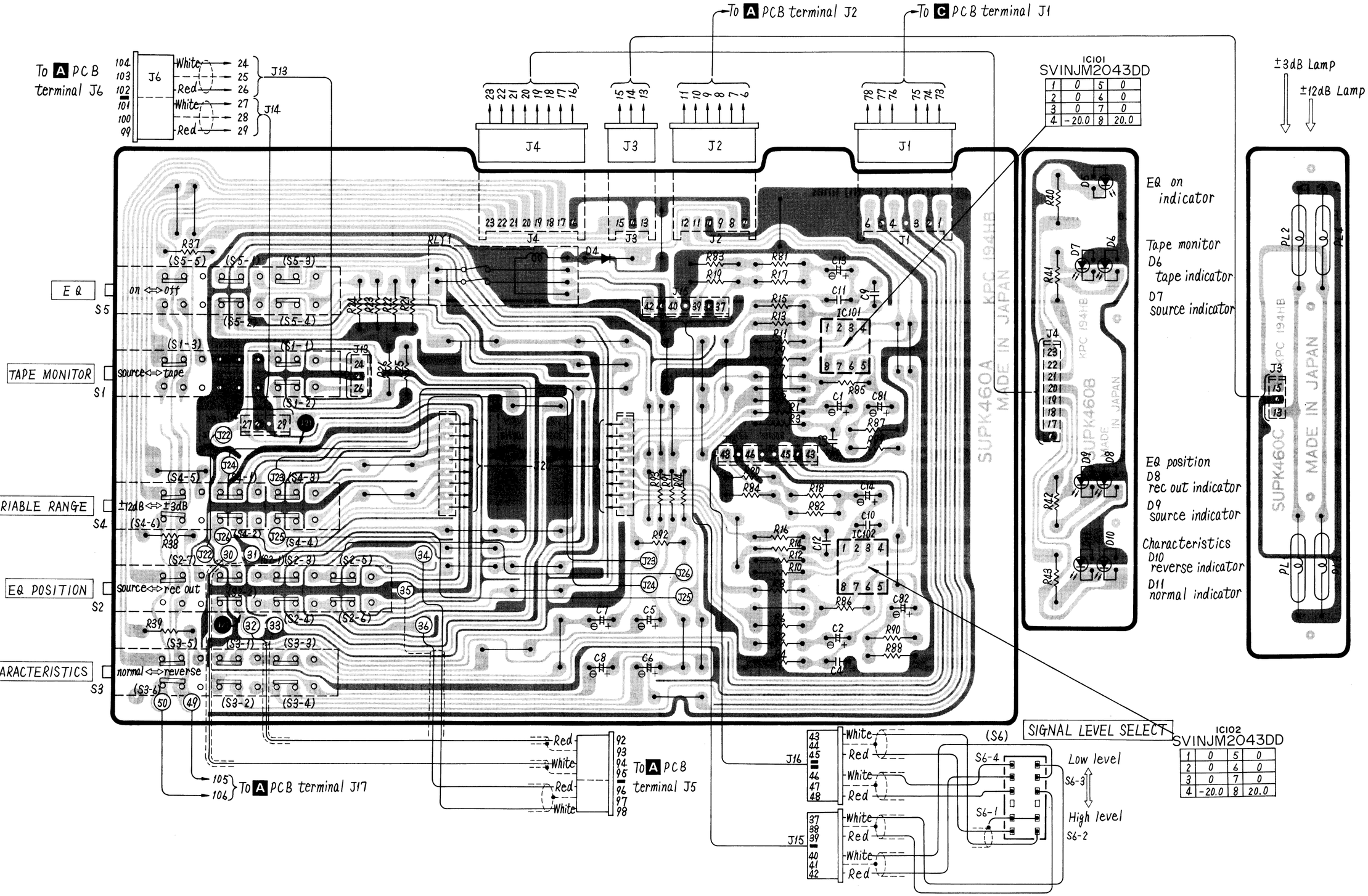
Right and Left Channel 33 Band Level Control

Ground (Earth) lines

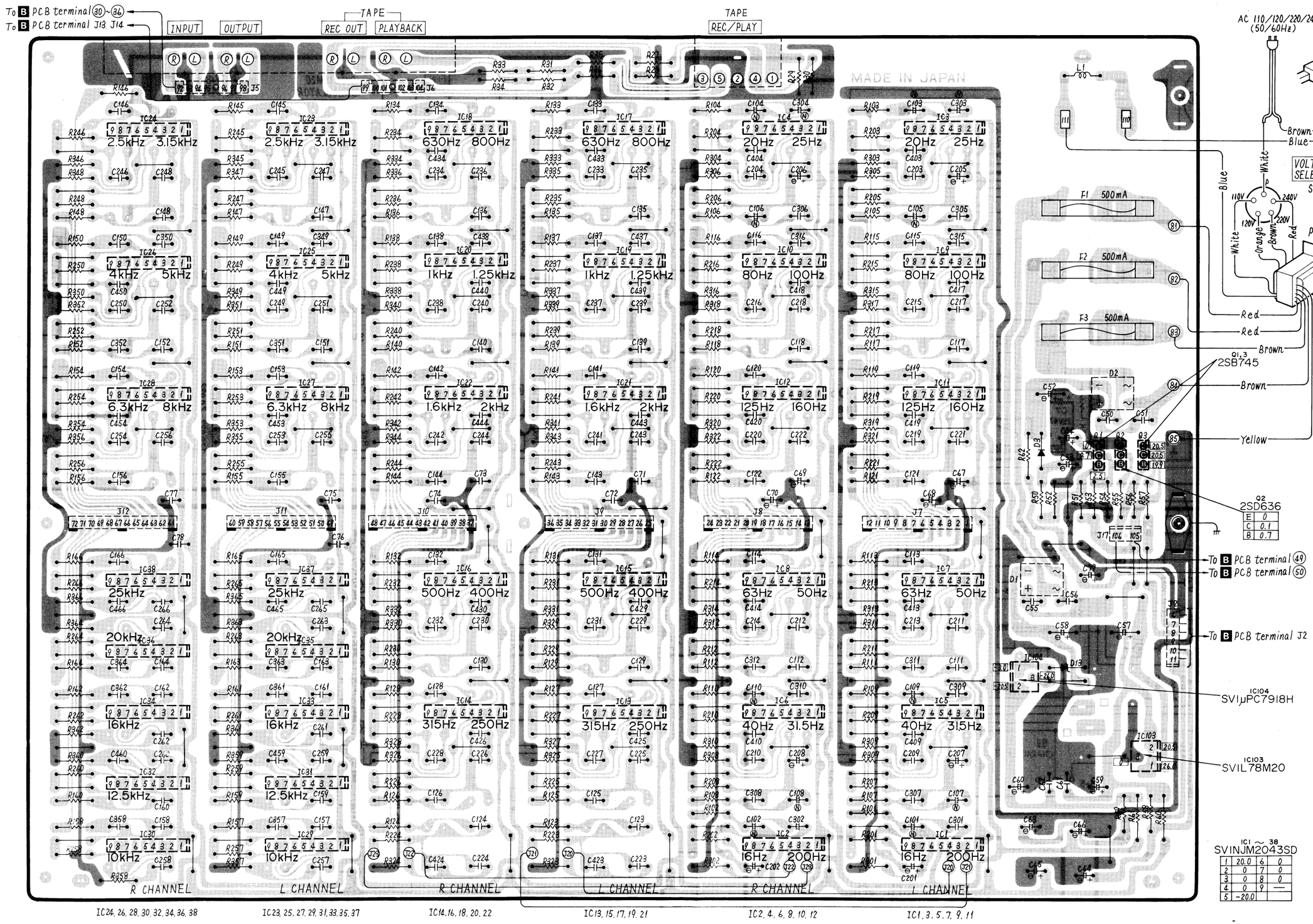


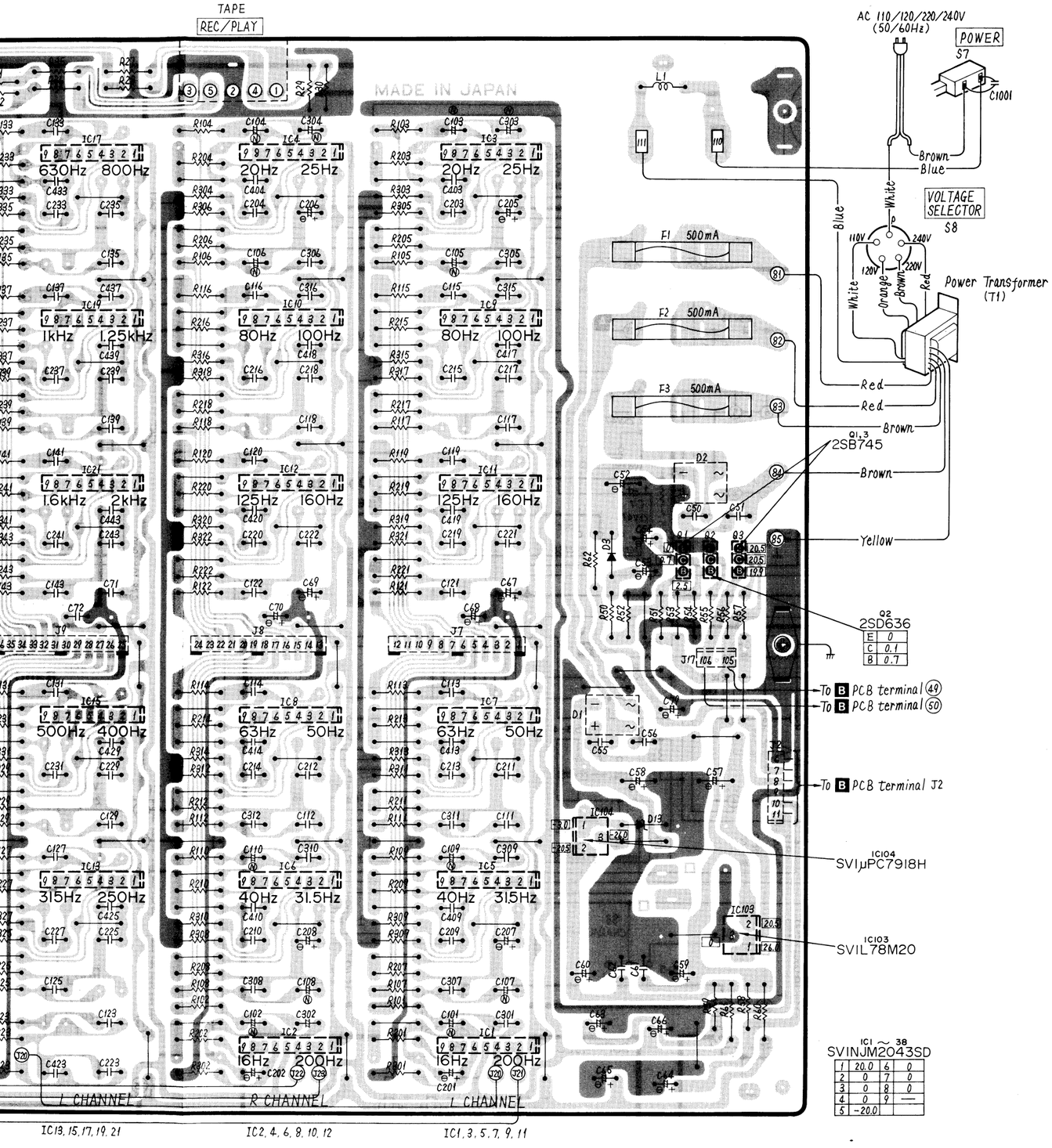
B P.C.B.

Equalization — Position Selector Switch
Band Pass Filter Buffer and Operation Amplifier



A P.C.B. Right and Left Channel Band Pass Filter and Power Supply

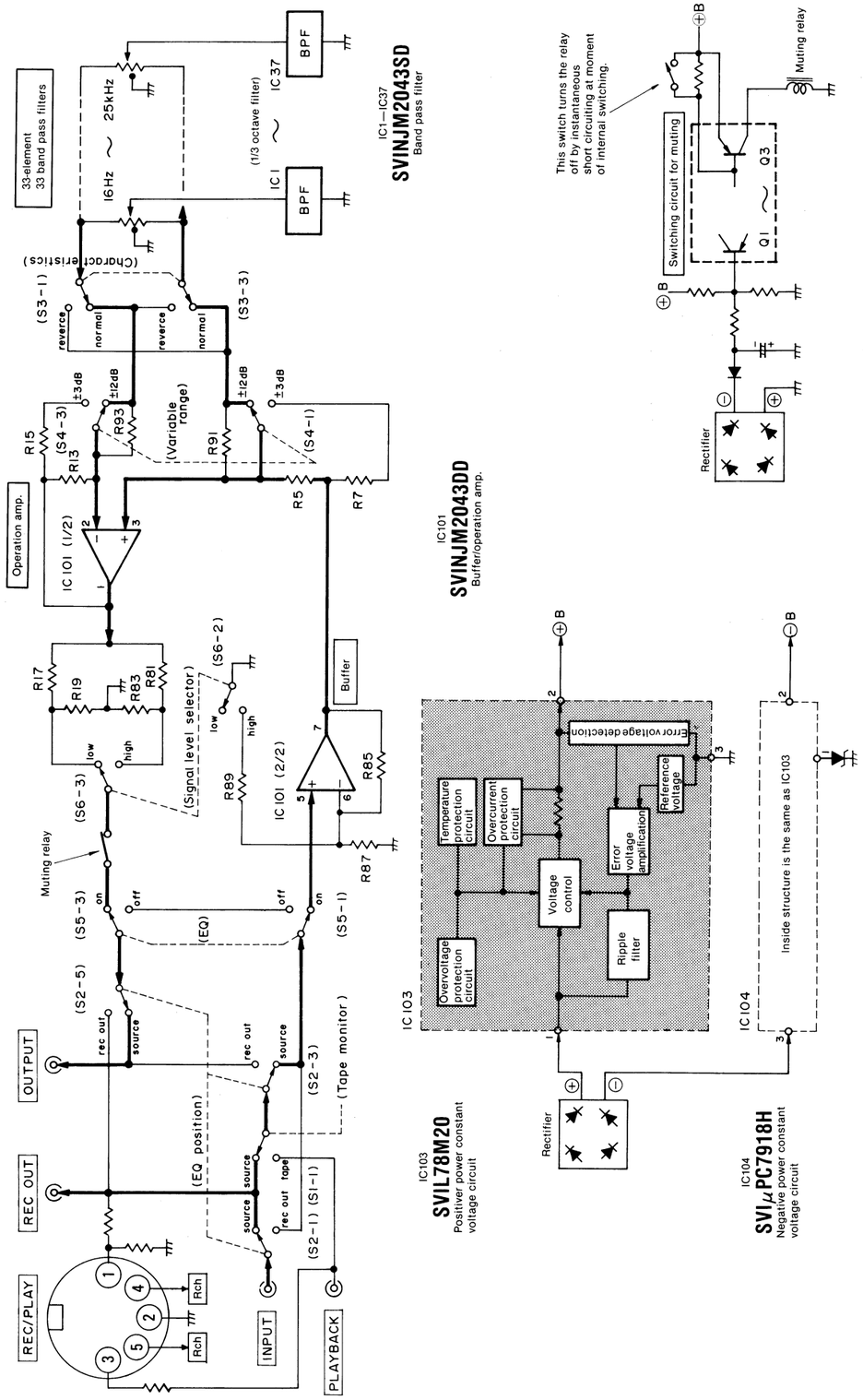




E	0		
C	0.1		
B	0.7		

1	20.0	6	0
2	0	7	0
3	0	8	0
4	0	9	—
5	-20.0		

■ BLOCK DIAGRAM



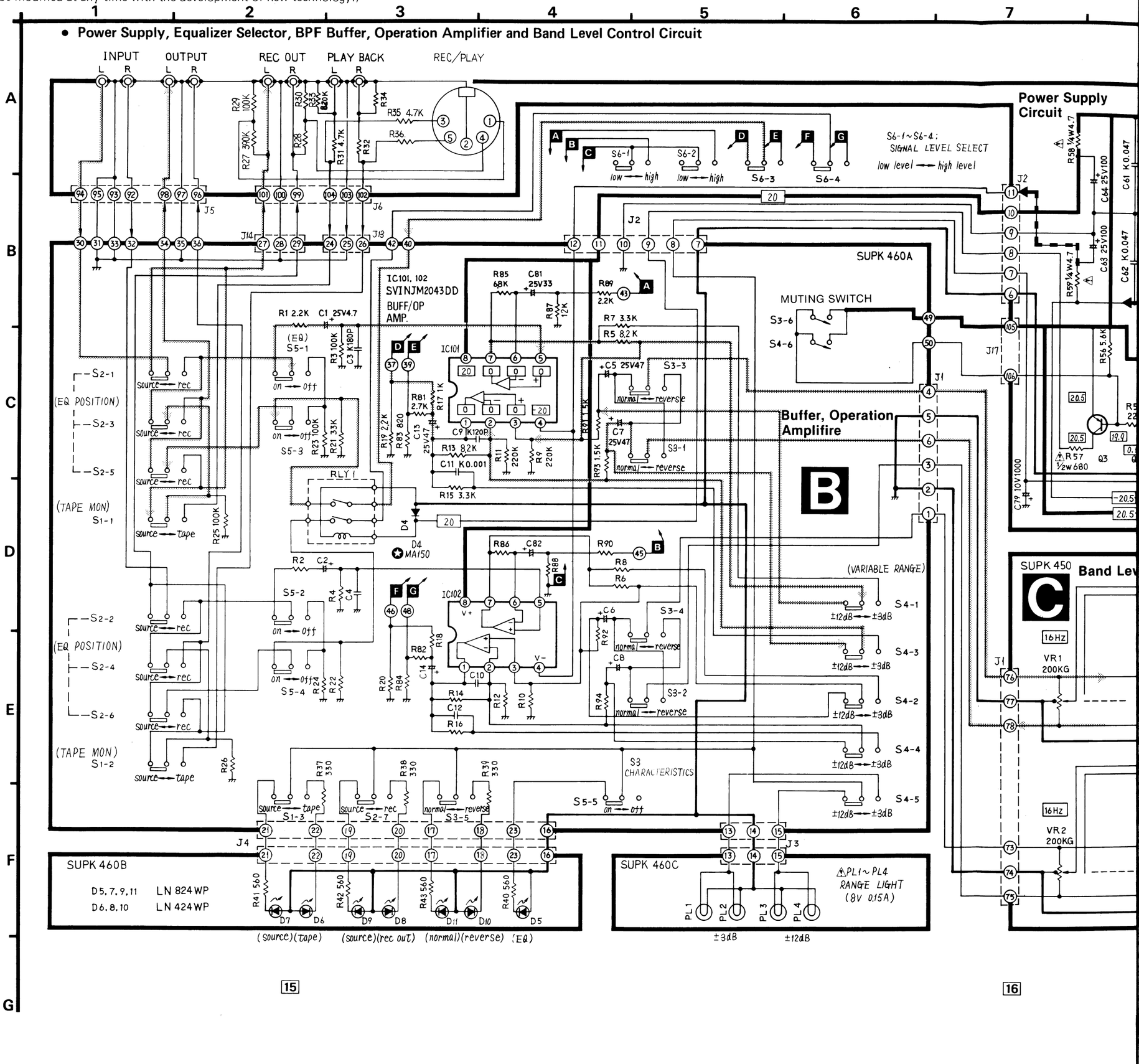
■ SCHEMATIC DIAGRAM Ⓐ

(This schematic diagram may be modified at any time with the development of new technology.)

Notes:

* The part No. of transistors, IC and diodes mentioned in schematic diagram stand for production Part No.
Regarding the Part No. without ✪ mark, the production Part No. are different from the replacement part No.
Therefore, when placing an order for replacement parts, please use the Part No. in the replacement parts list.

1. **S1-1 ~ S1-3** : Tape monitor switch in "**source**" position.
source ⟷ tape
2. **S2-1 ~ S2-7** : Equalization - position selector switch in "**source**" position.
source ⟷ rec out
3. **S3-1 ~ S3-6** : Characteristics selector switch in "**normal**" position.
normal ⟷ reverce
4. **S4-1 ~ S4-6** : Variable - range selector switch in "**± 12 dB**" position.
± 12 dB ⟷ ± 3 dB
5. **S5-1 ~ S5-5** : Equalization switch in "**on**" position.
6. **S6-1 ~ S6-4** : Signal level selector switch in "**low level**" position.
low level (150mV) ⟷ high level (1V)
7. **S7** : Power switch in "**on**" position.
8. **S8** : Voltage selector switch in "**220V**" position
110V ⟷ 120V ⟷ 220V ⟷ 240V
9. S3-6 and S4-6 are muting switches for changeover.
These switches momentarily turns on the relay off.
10. The circuit is same for both L and R channels.
For the resistance value and Capacity of R channel Op amp. (IC102), refer to the L channel (IC101).
11. ▭ Indicated voltage values are the standare values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
12. ▨ Signal lines of left channel.
13. ▬▬ Positive (⊕ B) voltage lines. ▬▬▶ Negative (⊖ B) voltage lines
14. Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.



th the development of new technology.)

ply, Equalizer Selector, BPF Buffer, Operation Amplifier and Band Level Control Circuit

OUTPUT L R · REC OUT L R · PLAY BACK L R · REC/PLAY

R29 100K · R27 390K · R30 82K · R28 · R31 4.7K · R32 · R34 · R35 4.7K · R36

J5 · J6 · J14 · J18

S5-1 (EQ) on → off · S5-3 on → off · S5-2 on → off · S5-4 on → off

source → rec · source → tape

R1 2.2K · C1 25V4.7 · R3 100K · C3 K180P · R23 100K · R21 33K · R25 100K · R2 · C2 · R4 · C4 · R24 · R22 · R26

RLY1

IC101, 102 SVINJM2043DD BUFF/OP AMP.

R85 68K · C81 25V33 · R87 12K · R89 2.2K · R7 3.3K · R5 8.2K · R81 2.7K · R17 1K · R17 2.2K · R83 820 · C13 25V47 · C9 K120P · R13 8.2K · C11 K0.001 · R15 3.3K · R11 220K · R9 220K · R91 1.5K · R93 1.5K · C5 25V47 · C7 25V47 · S3-3 normal → reverse · S3-1 normal → reverse

D4 MA150

R86 · C82 · R90 · R88 · R8 · R6 · IC102 V+ V− · C6 · C8 · C10 · R14 · C12 · R16 · R18 · R82 · C14 · R20 · R84 · R92 · R94 · S3-4 · S3-2 normal → reverse

S4-1 ±12dB → ±3dB (VARIABLE RANGE) · S4-3 · S4-2 · S4-4 · S4-5

S3 CHARACTERISTICS

S1-3 source → tape · S2-7 source → rec · S3-5 normal → reverse · S5-5 on → off

R37 330 · R38 330 · R39 330

J4 · J3

LN 824WP
LN 424WP

R41 560 · R42 560 · R43 560 · R40 560

D7 D6 D9 D8 D11 D10 D5

(source)(tape) (source)(rec out) (normal)(reverse) (EQ)

SUPK 460C

PL1 PL2 PL3 PL4 ±3dB ±12dB

⚠PL1~PL4 RANGE LIGHT (8V 0.15A)

SUPK 460A

MUTING SWITCH S3-6 S4-6

S6-1~S6-4: SIGNAL LEVEL SELECT low level → high level

S6-1 low → high · S6-2 low → high · S6-3 · S6-4

J2 · J1 · J17

Buffer, Operation Amplifire **B**

Power Supply Circuit **A**

IC103 SVIL78M20 ⊕REGULATOR · IC104 SVIμPC7918H ⊖REGULATOR

IC 103 · IC 104 · D13

R58 ½W4.7 · R59 ½W4.7 · C64 25V100 · C61 K0.047 · C59 25V220 · C57 35V1000 · C63 25V100 · C62 K0.047 · C60 25V220 · C58 35V1000 · C55 Z0.022 · C56 Z0.022

D1 · D1,2 SVDIB4B42 · D13 SVD05Z3.0F-3

⚠F1 T500mA · ⚠F2 T500mA · ⚠F3 T500mA

AC 22V RED · 0V YEL · AC 22V RED · BRN AC 8V · BRN

Q1,3 2SB745 SWITCHING · Q2 2SD636 SWITCHING

D3 MA150

R56 5.6K · R55 22K · R53 220K · R51 22K · R50 15K · R54 33K · R52 68K · R62 2.2 · R57 ½W680 · C79 10V1000 · C54 10V220 · C53 10V1000 · C52 35V2200 · C50 Z0.022 · C51 Z0.022 · C66 25V220 · C65 25V220

⚠R61 ½W 2.2 · ⚠R60 ½W 2.2

AC 110/120/220/240V (50/60Hz)

VOLTAGE SELECTOR 240V RED · 220V BRN · 120V ORG · 110V WHT · S8 · P WHT · S7 POWER · BLU · 9100 2400

⚠T1 · ⚠L1

15

SUPK 450 **Band Level Control Circuit** **C**

16Hz VR1 200KG · 200Hz VR23 · 25KHz VR65

16Hz VR2 200KG · 200Hz VR24 · 25KHz VR66

J7 · J9 · J11 · J8 · J10 · J12

16

■ SCHEMATIC DIAGRAM Ⓑ (This schematic diagram may be modified at any time with the development of new technology.)

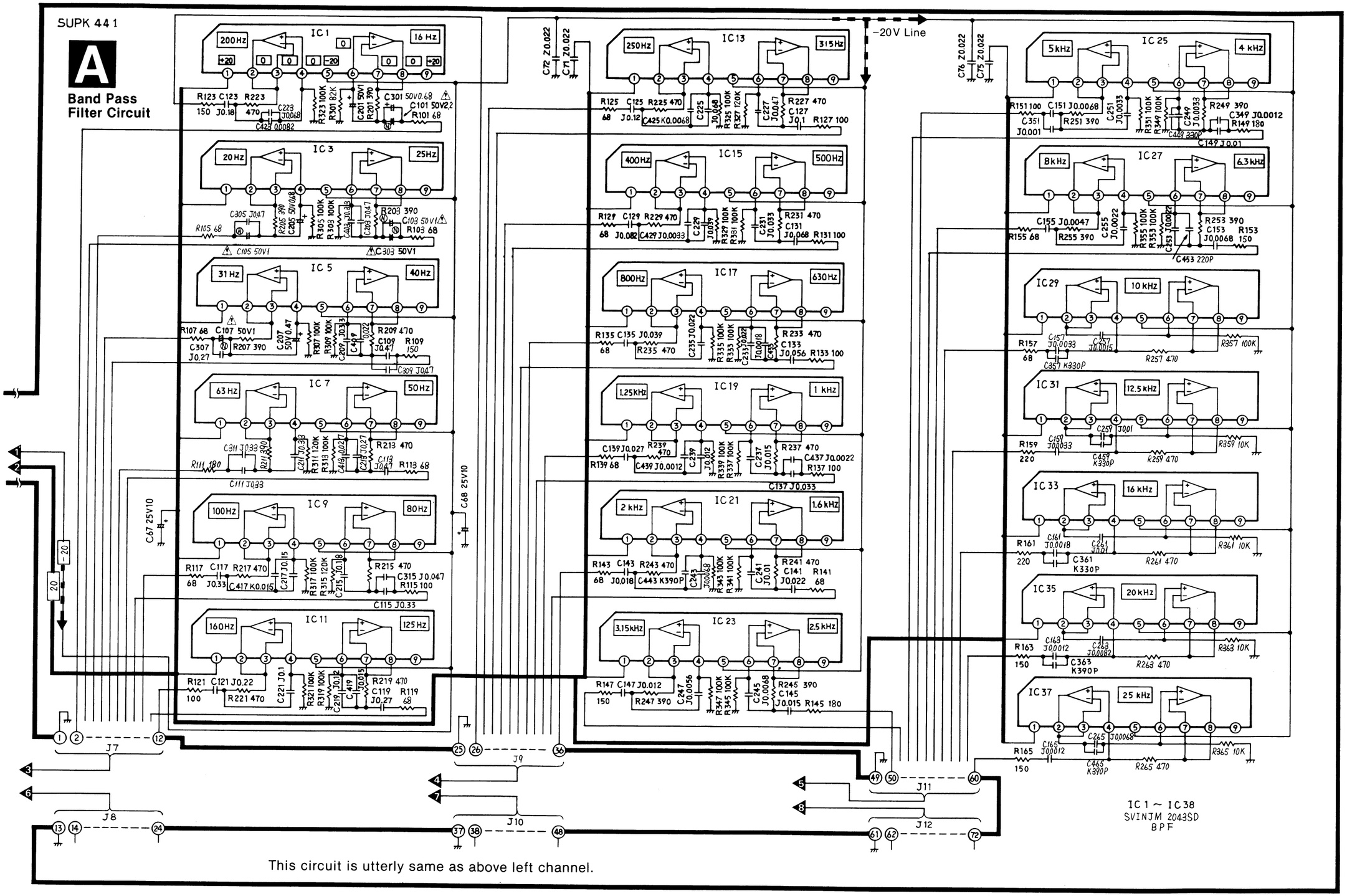
1 2 3 4 5 6 7 8 9 10

- Band Pass Filter Circuit

SUPK 44 1

A

Band Pass Filter Circuit

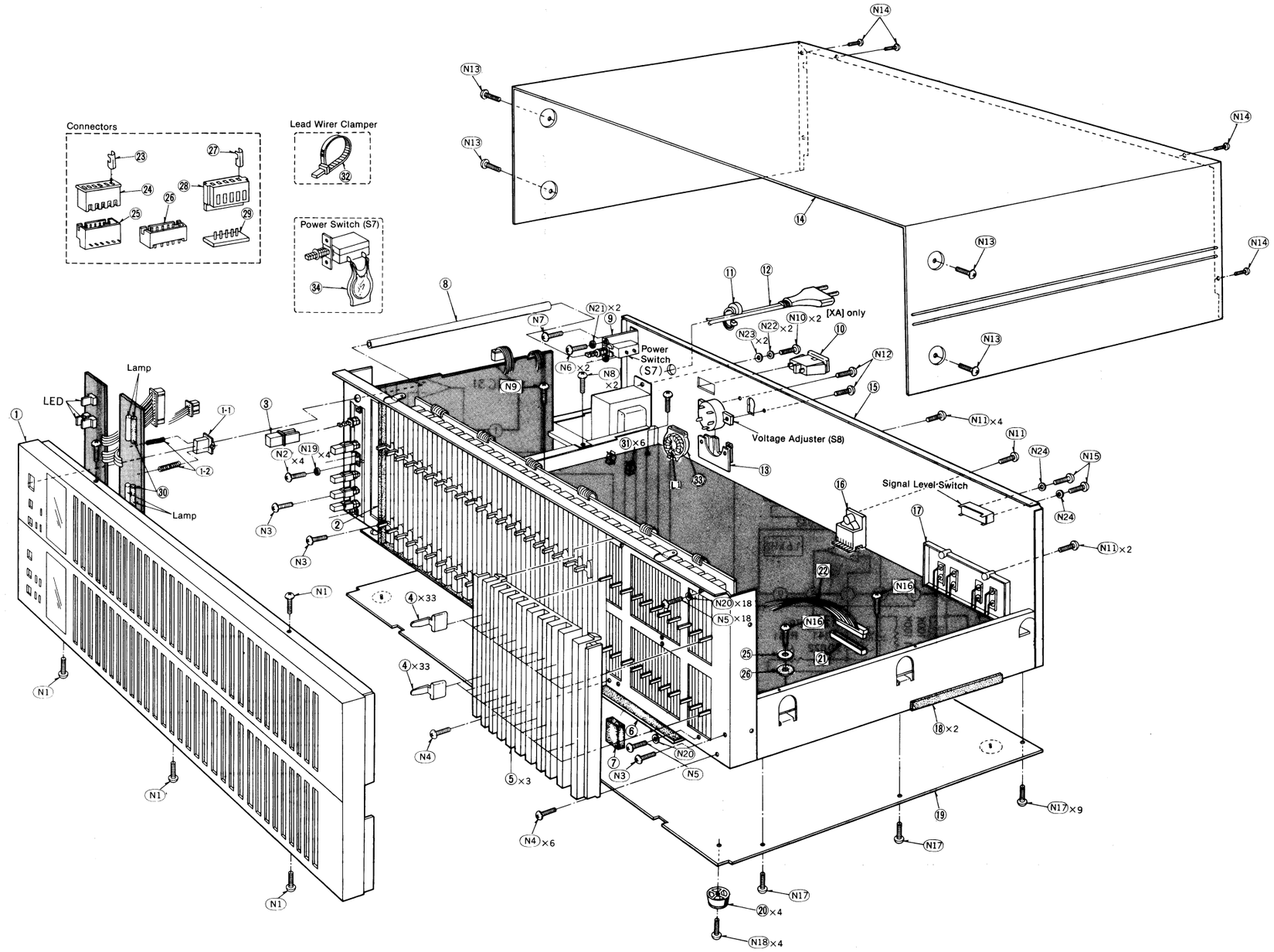


This circuit is utterly same as above left channel.

■ EXPLODED VIEW

Areas

* [EX] is available in Switzerland and Scandinavia.
* [EK] is available in United Kingdom.
* [EF] is available in France.
* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.



■ REPLACEMENT PARTS LIST.....Cabinet, Chassis and Packing Parts

Notes:

1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice:
   Components indentified by ⚠ make have special characteristics importanf for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Bracketed indications Ref. No. columns specify the area.
   Parts without these indications can be used for all areas.
4. The "**S**" mark is service standard parts and may differ from production parts.
5. [K] -marked parts are used for black type only, while ○-marked parts are for silver type only.
6. Parts other than [K] and ○-marked are used for both black and silver types.
7. The parenthesized numbers in the columns of description stand for the quantity per set.

Black type model No. : SH-8065 (K)

Ref. No.		Part No.	Description	
CABINET and CHASSIS PARTS				
1	[K]	SYWK140	Front Panel Ass'y (Black), W/Power Button	(1)
1	○	SYWK150	Front Panel Ass'y (Silver) W/Power Button	(1)
1–1		SBC435	Button, Power	(1)
1–2		SUS159	Spring, Power Button	(2)
2		SHGK457	Rubber	(1)
3		SBC367	Button, Switches	(5)
4		SBDK3	Knob, Band Level Control	(6)
5		SGXK42–1	Ornament, Band Level Control Volume	(3)
6		SHSK149–1	Rubber	(1)
7		SHG6051	Rubber, Printed Circuit Board	(1)
8		SUBK5	Coupling Rod	(1)
9		SUWK260	Bracket, Power Switch	(1)
10 [XA] only	⚠	SJS9221–1	Socket, AC Outlet	(1)
11		SHR127	Bushing, AC Cord	(1)
11 [EK] only		SHR129	Bushing, AC Cord	(1)
12	S ⚠	SJA88	AC Cord	(1)
12 [EK] only	⚠	RJA45YA	AC Cord	(1)
13		SMN1635	Bracket, Switch	(1)
14	[K]	SKCH8065KN	Cabinet (Black)	(1)
14	○	SKCH8065N	Cabinet (Silver)	(1)
15 [EX]		SGP130–1A	Rear Panel	(1)
15 [XA]		SGP130–2A	Rear Panel	(1)
15 [EF,EK]		SGPH8065H	Rear Panel	(1)
16		SJS6513	Socket, DIN	(1)
17		SJF3049–1N	Terminal, Input & Output	(1)
18		SHGK458	Rubber, Side	(2)
19		SKUK100	Bottom Board	(1)
20		SKL227–2	Foot, Set	(4)
21		SJT3013	Connector (12 Pin)	(6)
22		SWKKH8065–10	Lead Ass'y	(6)
23		SJT783	Terminal, Socket	(38)
24		SJS5331	Socket (3 Pin)	(2)
24		SJS5629	Socket (6 Pin)	(1)
24		SJS5715	Socket (7 Pin)	(2)
24		SJS5811	Socket (8 Pin)	(2)
25		SJT3321	Connector (3 Pin)	(1)
25		SJT3613	Connector (6 Pin)	(1)
25		SJT3711	Connector (7 Pin)	(1)
25		SJT3811	Connector (8 Pin)	(1)
26		SJT3319	Connector (3 Pin)	(1)
26		SJT3709	Connector (7 Pin)	(1)
26		SJT3809	Connector (8 Pin)	(1)
27		SJT779	Terminal, Socket	(12)
28		SJS5703	Socket (7 Pin)	(1)
28		SJS5803	Socket (8 Pin)	(1)
29		SJT3707	Connector (7 Pin)	(1)
29		SJT3805	Connector (8 Pin)	(1)

Ref. No.		Part No.	Description	
30		SDUK4	Tube, Lamp	(2)
31		SJT347	Clip, Fuse	(6)
32		SHR301	Clamper, Lead Wire	(9)
33		SMXK12–2	Cover, Coil	(1)
34		SMXA65	Cover, Capacitor	(1)
SCREWS				
N1		XTS3+6BFZ	Tapping, ⊕ 3 x 6	(5)
N2	S	XSN3+6S	⊕ 3 x 6	(4)
N3	S	XTB3+8BFZ	Tapping, ⊕ 3 x 8	(3)
N4	S	XTS3+8BFZ	Tapping, ⊕ 3 x 8	(6)
N5	S	XSN2+4BV	⊕ 2 x 4	(18)
N6	S	XSN3+6S	⊕ 3 x 6	(2)
N7	S	XTB3+8BFZ	Tapping, ⊕ 3 x 8	(1)
N8	S	XTB3+8BFZ	Tapping, ⊕ 3 x 8	(2)
N9	S	XTBS3+8BFZ1	Tapping with Detent ⊕ 3 x 8	(2)
N10	S	XSN4+10BVS	⊕ 4 x 10	(2)
N11	S	XTB3+8BFZ	Tapping, ⊕ 3 x 8	(7)
N12	S	XTB3+16BFZ	Tapping, ⊕ 3 x 16	(2)
N13	S [K]	XTB4+8BFZ	Tapping, ⊕ 4 x 8 (Black)	(4)
N13	S ○	XTB4+8BFN	Tapping, ⊕ 4 x 8 (Silver)	(4)
N14	S [K]	XTB3+8BFZ	Tapping, ⊕ 3 x 8 (Black)	(5)
N14	S ○	XTB3+8BFN	Tapping, ⊕ 3 x 8 (Silver)	(5)
N15	S	XSN26+6BV	⊕ 2.6 x 6	(2)
N16	S	XTB3+8BFZ	Tapping, ⊕ 3 x 8	(2)
N17	S	XTB3+8BFN	Tapping, ⊕ 3 x 8	(9)
N18	S	XTB3+10BFZ	Tapping, ⊕ 3 x 10	(4)
WASHERS				
N19	S	XWA3B	Spring, ϕ3	(4)
N20	S	XWA2BFZ	Spring, ϕ2	(18)
N21	S	XWA3B	Spring, ϕ3	(2)
N22	S	XWA4BFZ	Spring, ϕ4	(2)
N23	S	XWG4FZ	Plain, ϕ4	(2)
N24	S	XWA26BFZ	Spring, ϕ2.6	(2)
N25		XWE3E10	Plain, ϕ3	(1)
ACCESSORIES				
A1		SJP2129-5	Pin Cord	(2)
A2 [XA] only	⚠	SJP5213–1	Plug Adapter, Power Source	(1)
A3		SQFK10005	Instructions Book	(1)
A3 [XA] only		SQFK10004	Instructions Book	(1)
A3–1		SQXK50007	Chart, Frequency Level Memory	(3)
PACKING PARTS				
P1[EF] only		SPGK82	Carton Box	(1)
P1		SPGK83	Carton Box	(1)
P1[XA] only		SPGK84	Carton Box	(1)
P2	○	SGK1411	Label (Silver)	(2)
P3		SPSK36	Pab, Side	(2)
P4	[K]	SPP651	Polyethylene Bag	(1)
P4	○	SPP703	Polyethylene Bag	(1)
P5		SPJ15	Polyethylene Bag, AC Cord	(1)

Printed in Japan
82036100Ⓗ TK
82063000

ORDER NO. SD82032136C8-A

DEUTSCH

FRANÇAIS

Stereo Graphic Equalizer SH-8065/SH-8065(K)

Note: This booklet contains the specifications for SH-8065, written in Germany French and Spanish.
File this manual together with the SH-8065 service manual (Order No. SD82032136C8).

DEUTSCH

■ TECHNISCHE DATEN

(Spezifikationen Können infolge von Verbesserungen ohne Ankündigung geändert werden.)

(DIN 45 500)

Frequenzgang (mittelstellung):	5 Hz~100 kHz, −1 dB
Maximalausgangsspannung:	8 V (1 kHz, THD 0,01%)
Nennausgangsspannung:	1 V
Nennklirrfaktor:	0,0025% (20 Hz~20 kHz)
Eingangsspannung:	1 V
Geräuschabstand:	100 dB (110 dB, IHF, A)
Maximaleingangsspannung:	8 V (1 kHz)
Eingangsimpedanz:	47 kΩ
Ausgangsimpedanz:	600Ω
Verstärkung:	0±1 dB
Frequenzgangregler:	+12 dB~−12 dB, +3 dB~−3 dB (33 Regler, stufenlos verstellbar)
Eingangssignalschalter:	150 mV/1 V
Mittenfrequenzen:	16 Hz, 20 Hz, 25 Hz, 31,5 Hz, 40 Hz, 50 Hz, 63 Hz, 80 Hz, 100 Hz, 125 Hz, 160 Hz, 200 Hz, 250 Hz, 315 Hz, 400 Hz, 500 Hz, 630 Hz, 800 Hz, 1 kHz, 1,25 kHz, 1,6 kHz, 2 kHz, 2,5 kHz, 3,15 kHz, 4 kHz, 5 kHz, 6,3 kHz, 8 kHz, 10 kHz, 12,5 kHz, 16 kHz, 20 kHz, 25 kHz

ALLGEMEINE DATEN

Stromversorgung:	Wechselstrom, 110 V/120 V/ 220 V/240 V, 50 Hz/60 Hz
Leistungsaufnahme:	29 W
Abmessungen (H×B×T):	153×430×330 mm (6-1/32"×16-15/16"×13")
Gewicht:	6.6 kg (14,6 lbs)

FRANÇAIS

■ CARACTERISTIQUES

(Sujet á changement sans prearis.)

(DIN 45 500)

Courbe de réponse (position centrale):	5 Hz~100 kHz, −1 dB
Tension de sortie maximale:	8 V (1 kHz, THD 0.01%)
Tension de sortie nominale:	1 V
Distortion harmonique totale:	0.0025% (20 Hz~20 kHz)
Sensibilité d'entrée:	1 V
Signal/Bruit:	100 dB (110 dB, IHF' A)
Tension d'entrée maximale:	8 V (1 kHz)
Impédance d'entrée:	47 kΩ
Impédance de sortie:	600Ω
Gain:	0±1 dB
Commandes de niveau de gamme:	+12 dB~−12 dB, +3 dB~−3 dB (33 éléments, continuellement variables)
Sélecteur de niveau de signal:	150 mV/1 V
Fréquences charnières:	16 Hz, 20 Hz, 25 Hz, 31,5 Hz, 40 Hz, 50 Hz, 63 Hz, 80 Hz, 100 Hz, 125 Hz, 160 Hz, 200 Hz, 250 Hz, 315 Hz, 400 Hz, 500 Hz, 630 Hz, 800 Hz, 1 kHz, 1,25 kHz, 1,6 kHz, 2 kHz, 2,5 kHz, 3,15 kHz, 4 kHz, 5 kHz, 6,3 kHz, 8 kHz, 10 kHz, 12,5 kHz, 16 kHz, 20 kHz, 25 kHz

GENERALITES

Alimentation:	CA. 110 V/120 V/220 V/240 V, 50 Hz/60 Hz
Consommation:	29 W
Dimensions (h×l×pr) mm:	153×430×330 mm (6-1/32"×16-15/16"×13")
Poids:	6.6 kg (14,6 lbs)

ESPAÑOL

■ ESPECIFICACIONES

(Estas especificaciones están sujetas a cualquier cambio sin previo eviso.)

(DIN 45 500)

Respuesta de frecuencia (posición central):	5 Hz~100 kHz, −1 dB
Tensión de salida máxima:	8 V (1 kHz, THD 0.01%)
Tensión de salida de régimen:	1 V
Distorsión armónica total nominal:	0,0025% (20 Hz~20 kHz)
Sensibilidad de entrada:	1 V
Relación de señal ruido:	100 dB (110 dB, IHF' A)
Tensión de entrada máxima:	8 V (1 kHz)
Impedancia de entrada:	47 kΩ
Impedancia de salida:	600Ω
Ganancia:	0±1 dB
Controles de nivel de banda:	+12 dB~−12 dB, +3 dB~−3 dB (33 elementos, continuamente variables)
Selector de nivel de la señal:	150 mV/1 V
Frecuencia central:	16 Hz, 20 Hz, 25 Hz, 31,5 Hz, 40 Hz, 50 Hz, 63 Hz, 80 Hz, 100 Hz, 125 Hz, 160 Hz, 200 Hz, 250 Hz, 315 Hz, 400 Hz, 500 Hz, 630 Hz, 800 Hz, 1 kHz, 1,25 kHz, 1,6 kHz, 2 kHz, 2,5 kHz, 3,15 kHz, 4 kHz, 5 kHz, 6,3 kHz, 8 kHz, 10 kHz, 12,5 kHz, 16 kHz, 20 kHz, 25 kHz

EN GENERAL

Alimentación de corriente:	C.A. de 110 V/120 V/220 V/ 240 V, 50 Hz/60 Hz
Consumo de corriente:	29 W
Dimensiones (alto×ancho×prof.):	153×430×330 mm (6-1/32"×16-15/16"×13")
Peso:	6,6 kg (14,6 lbs)

Printed in Japan
82034700Ⓗ TK
82063000

ORDER NO. SD82072255C2

Service Manual

Stereo Graphic Equalizer

SH-8065

[EB], [EGA]

SH-8065(K)

[EB], [EGA]

* The cabinet and front panel are available in black color and silver types.
* The black type model is provided with (K) in the Service Manual.

Areas
* [EB] is available in Belgium.
* [EGA] is available in F.R. Germany.

* Please use this manual together with the service manual for Model No. SH-8065/(K) [EX, EK, EF and XA areas], Order No. SD82032136C8.
* Mentioned in this parts list are only those changed in Model No. SH-8065/(K) for destination [EX] area.

CHANGES

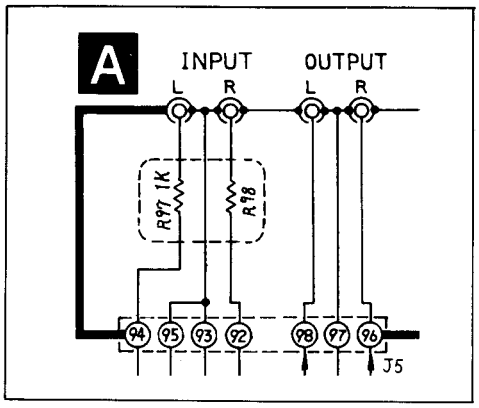
■ RESISTORS

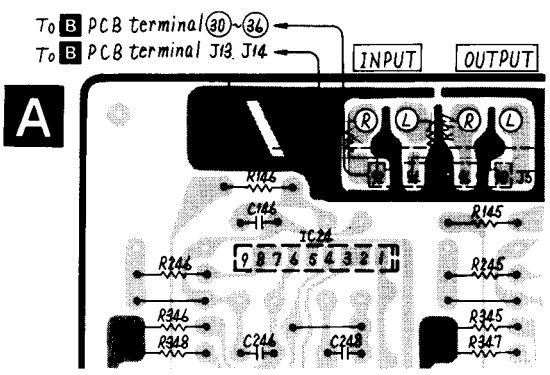
Ref. No.	Change of Part No. SH-8065/(K) [EX] → SH-8065/(K) [EB, EGA]		Description
RESISTORS			
R97, 98	Addition	ERD25FJ102 [EGA] only	Carbon, 1kΩ, 1/4W, ±5%

■ CHANGE OF CIRCUIT

- **Input terminal circuit: [EGA] area only**

( ) **Additional parts**





Technics

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